

# MODERN SCIENCE SLAYS ITS SERVANTS.

Terrible Death-Dealing by Explosions That Have Occurred in All Parts of the World.

The Winchester powder explosion, caused no doubt by carelessness, calls anew to notice the awful dangers which lurk within the walls of great factories, where hundreds or even thousands of employes are at work. The streets of cities are honey-combed with gas mains and oil conductors, in manufacturing districts are hundreds of boilers which may in a moment be converted into machines of death and destruction. There are innumerable articles of commerce which way spread ruin over the neighborhoods in which they are stored and handled.



Sir Frederick Abel's Coat and Hat After an Explosion.

From a Photograph. The clothing which he wore, torn by the force of the concussion, was photographed by attaches of the War Office.

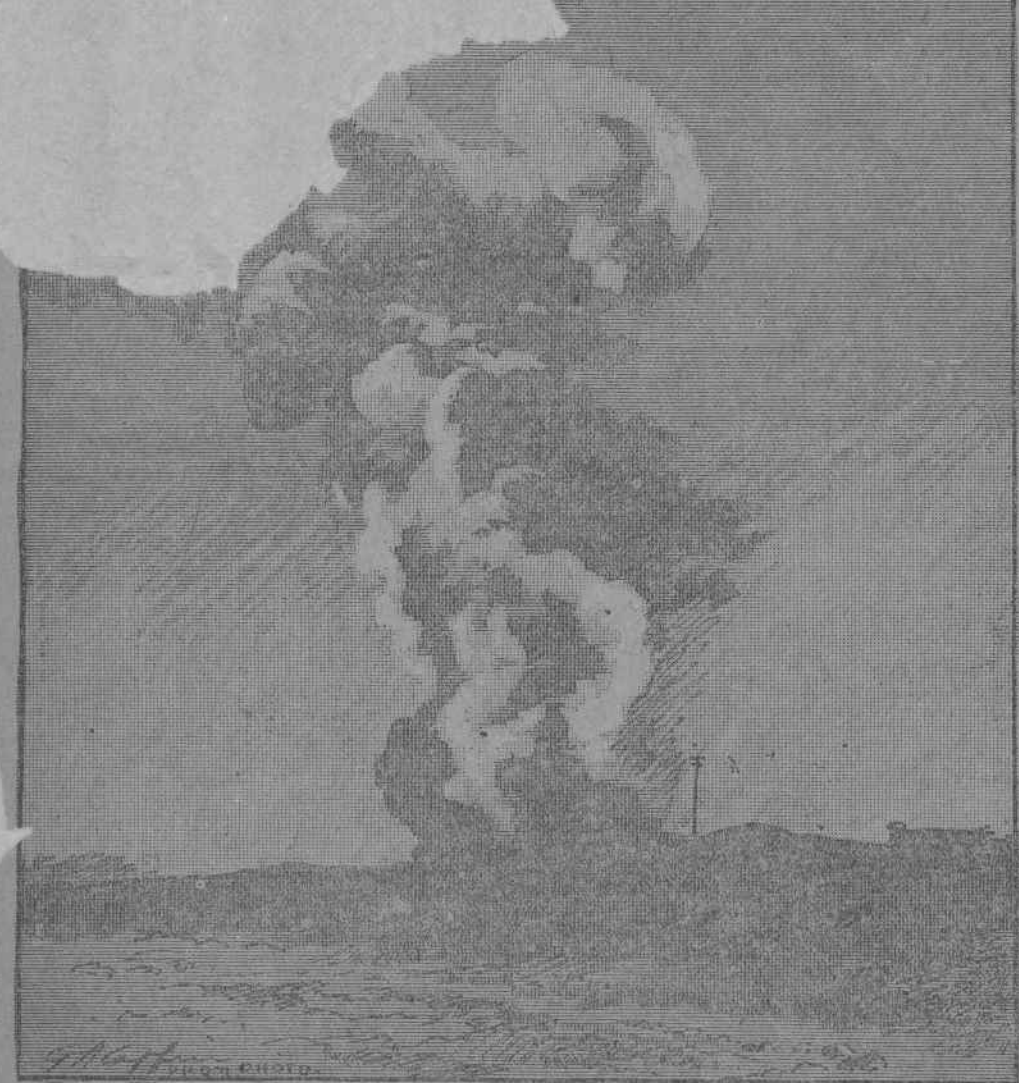
Even so seemingly innocent a commodity as flour loads the air of great milling establishments with millions of explosive particles, and some of the most disastrous explosions that ever happened have occurred in flour mills, both in this country and Europe.

On this page are printed pictures showing what destruction has been wrought by some of the most famous explosions throughout the world during the last quarter century. Every picture is a warning, and the story which accompanies them should be read carefully for the lesson that these great disasters teach.



The Great Cauliflower of Smoke from the Antwerp Explosion.

From a Photograph. "The smoke went up in a vast plume, which hung for some minutes in the almost motionless air. The scene beneath was awful."



The Great Johannesburg Explosion (Snapshot Taken at a Distance of Four Miles.)

From a Photo, by Gannon, Johannesburg.

"Millions of cartridges were thrown up into the air and descended like a shower of hailstones over a great area, fifteen of them to the square foot."

THE frightful explosion of powder in the Winchester Gun Shell shops in New Haven is only another addition to an awful record of fatal carelessness. It is only another warning against contempt which custom breeds among workers in explosives for the death-dealing powers which hold life and property at mercy.

In commerce and the manufacturing industries there are handled, day after day, in enormous quantities, materials which, if but one man be for one instant careless, will wreck property and put out human lives like candles. In the hearts of great cities are stored thousands upon thousands of pounds of potent explosives, awaiting only a vagrant spark, a sudden jar, or even in some cases a particular atmospheric condition to convert them into engines of death. The record of explosions is the most ghastly and most shocking of all the records of mankind. Danger is everywhere. Moments of recreation, for example, to prevent explosions in places where they are stored. Even the most harmless of them are terrible. Toy caps, harmless enough as Fourth of July noise-makers, are fearful havoc if exploded in quantities.

In 1878 a warehouse in the Rue Berange, Paris, used by a toy cap manufacturer for storage, was utterly destroyed, four persons killed and sixteen others terribly injured. There were 20,772,000 caps in the place, and they contained a potential explosive force equal to 1,620 pounds of gunpowder. By subsequent experiment it was determined that the explosion must have been caused by the falling of some light upon the caps. In various forms and under various conditions, has been the cause of some of the most terrible explosions ever known. January, 1886, the Victoria station at Swich, England, was torn into tatters by the explosion of gas in the cellar. A glass carpenter, sent to make some repairs, had disarranged pipes so that they leaked. A few hours after he had left the building went to pieces with a violent report. The roof was in splinters, great beams were snapped like jackstraws and debris hurled into the air in clouds.



Gas Explosion, Victoria Station, Norwich.

From a Photo, by W. L. Shrubsole, Norwich.

"The building went to pieces with a tremendous report. The roof was in splinters, great beams were snapped like jackstraws and debris hurled into the air in clouds."



Explosion of Toy Caps in Paris.

From a Photograph.

"There were 20,772,000 caps in the place, and they contained a potential explosive force equal to 1,620 pounds of gun powder."

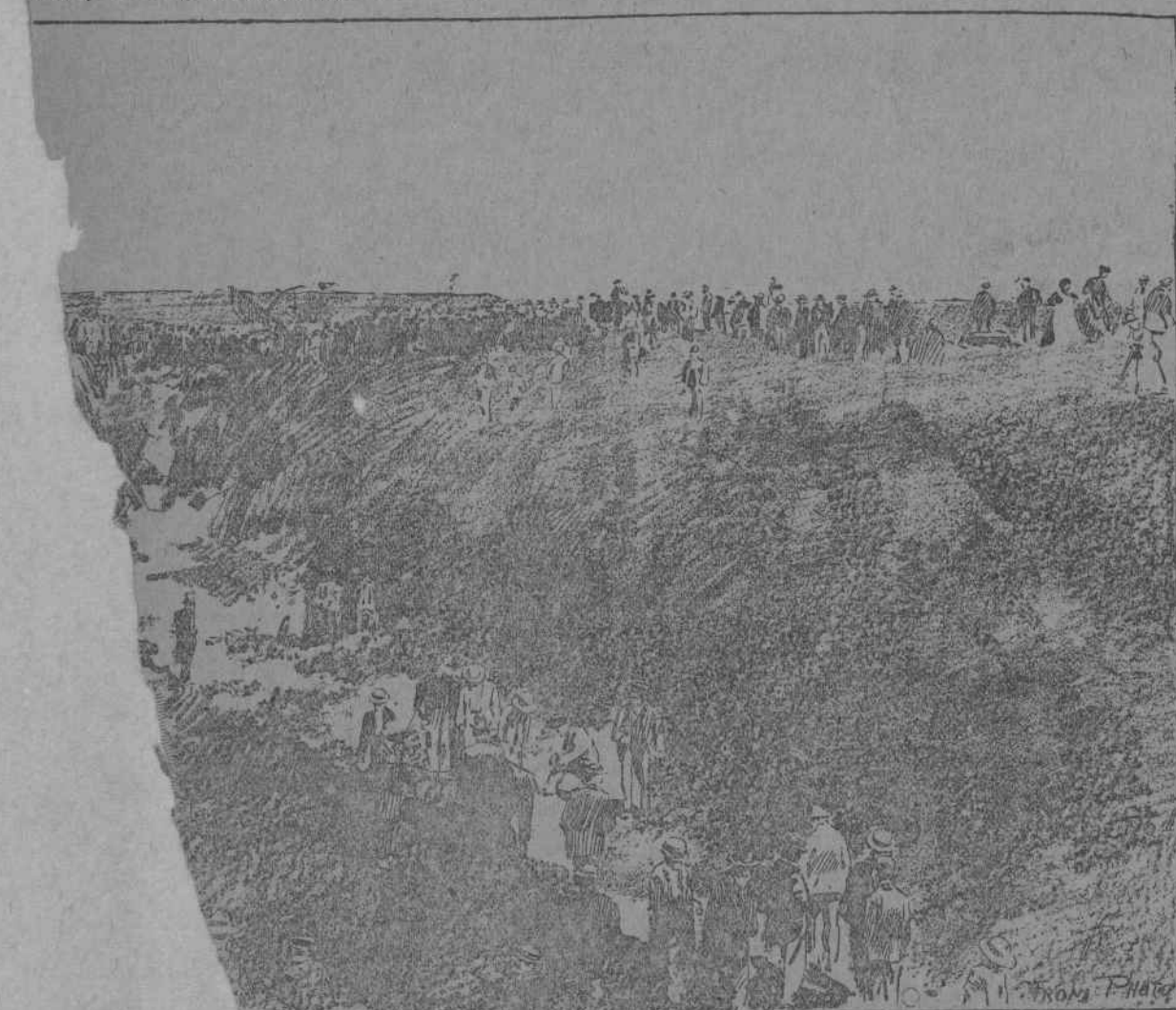
for some minutes in the almost motionless air.

The scene beneath it was awful. Millions of cartridges were thrown up into the air and descended like a shower of hailstones over a great area, fifteen of them to the square foot. Nearly 60,000 barrels of oil, which caught fire, added to the horror. The explosion, like that at Johannesburg, tore a great pit in the ground and out of this the disject pieces of more than 100 bodies were picked up. Even soil in the factory was killed, so the precise cause of the explosion was never known, but it was established that Carrivain had not kept to his agreement and it was six tons of powder which in done the terrible work.

It is difficult to believe that flour, the white, wholesome grist that goes to make daily bread, has a latent explosive power which, released, tears buildings to pieces and cancels human lives in an instant. Some of the most destructive explosions of the long and gruesome list, however, have been caused by flour. On July 3, 1871, roof of the Tradeston Grain and Mills in Glasgow was lifted into the air and the gables of the great building disintegrated in ruin, as if they had been pasteboard. Roofs and walls of neighboring buildings were shattered, and passenger vehicles in the street ground to bits.

The curiosities of explosions are scarcely less remarkable than the horrors of them. Dr. Barber, assistant to Professor Miller at the Peabody Museum, in Cambridge, was knocked insensible by the explosion of an ostrich's egg, and barely escaped with his life. The egg was eighteen inches circumference and weighed four pounds.

Of all the wonderful escapes which have been chronicled in connection with explosives, the most fabulous is that of Frederick Abel, the renowned chemist. During some experiments at Lydd one of his gun cotton exploded prematurely. Frederick was thirty yards away. He was hurled upon the ground and badly hurt. One small stone was hurled through his coat and made a severe wound, but it was not that he had no injuries. The explosion, which he wore, torn by the force of the concussion, was photographed by attaches of the War Office. The photograph from the Strand Magazine.



Johannesburg Explosion—Searching for Bodies in the Great Crater.

From a Photo, by Nicholls, Johannesburg.

"The ground," said the photographer, "was strewn with Kaffir skulls. The huge pit was a ghastly sepulchre, filled with pitiful, sickening scraps of humanity."

explosions, but no more terrible display of their might is recorded than the Johannesburg explosion of a year and a half ago. Fifty-five tons of blasting gelatine and ninety cases of detonators exploded on a siding of the Netherlands South African Railway, near the Johannesburg station. A train which was being shifted from one side track to another struck this death-laden car, and in a second the whole vicinity was rent and torn and hurled in dust and scraps high in the air. A mighty pit was hollowed out in the earth. Words could not describe the horror of it. "The ground," said one eyewitness, "was strewn with Kaffir skulls. The huge pit was a ghastly sepulchre, filled with pitiful, sickening scraps of humanity. Twenty sacks were filled with these fragments. Dismembered mules and horses, broken bits of wagons and railway rolling stock were scattered everywhere. Houses were in splinters. More than fifty dead bodies were found, and many victims died in the improvised hospitals."

The steel rails of the company's tracks were twisted like strips of pewter. Some of them, immediately adjoining the spot where the train load of explosives had stood, were curled up, twenty and even thirty feet in the air. A hot bolt from the explosion was hurled into a building outside of town, where 400 tons of dynamite was stored, but by some marvellous dispensation fell into a pall of water and was extinguished.

Some remarkable photographs were taken immediately after the explosion. One, made from a distance of four miles, shows the vast cloud of smoke which mounted into the air above the scene of ruin.

A very similar picture was made by an alert photographer after the great explosion in Antwerp, on September 6, 1890. The factory in which this explosion occurred was established by a Mr. Corvillain for the purpose of breaking up obsolete metal cartridges. Near it was a petroleum refinery, and the Municipal Council only allowed Corvillain to go on with his business on condition that he should never carry more than 600 pounds of powder. A month after the granting of the permit the place went up with a crash which was plainly heard at Flushing, thirty miles away. The smoke went up in a vast plume, which hung



Johannesburg Explosion—Showing the Railway Track at the Edge of the Crater.

From a Photo, by Davies Bros., Johannesburg.

"The steel rails of the company's tracks were twisted like strips of pewter. Some of them, immediately adjoining the spot where the train load of explosives had stood, were curled up, twenty and even thirty feet in the air."